UNION CARBIDE

NUCLEAR DIVISION NEWS

A Newspaper for Employees of the Nuclear Division, Union Carbide Corporation

Vol. 5 — No. 2 January 17, 1974

QUESTION BOX ??

If you have questions on company policies, benefits, etc. or any other problems with which we might help, just let us know. Drop your inquiry to the Editor, Nuclear Division News. *(Or telephone it to your plant news representative; see page 7). You may or may not sign your name. It will not be used in the paper.*

Questions are referred to the proper authorities for accurate answers. Each query is given serious consideration for publication.

Answers may be given to employees personally if they so desire.

QUESTION: When an employee retires from a monthly status supervisory position and a weekly employee has been elevated to fill the position and is sufficiently acting in that capacity, is it not a standard procedure that the newly-designated employee should expect his status to be changed from weekly to monthly and a comparable wage increase in accordance with the particular classification to which he has been advanced?

Who is responsible for determining these factors, the Division Director or the Wage Standards Department, and what procedure should an individual take to correct the situation?

ANSWER: An employee selected to replace a retired employee in a supervisory position would normally be changed in status with a wage increase to the appropriate rate of pay.

The responsible Division Director would be the person to initiate the action. If a question exists regarding an employee's status, the employee should contact the immediate supervisor or the Division Director for clarification.

QUESTION: Could some signs be put up in the larger plant parking lots (light poles or otherwise) to allow telling someone else where a car is parked? I find, for example, that it may take several minutes of conversation to tell a car pool member or a friend who wishes to pick up or leave a package where a car is parked in the main ORNL lot. This also increases traffic congestion at the gates as cars drive by the gates to pick up people who would meet at a car if they could do so without confusion.

ANSWER: Particularly in view of the emphasis being placed on car pooling, your suggestion is a good one. Y-12, ORGDP and ORNL plan on installing some means of marking locations in the larger parking lots.

QUESTION: The guards at ORNL have orders not to allow privately-owned bicycles through the gates into the plant area. It is difficult to think of a reason for such a rule. Bicycles do not require a significant amount of parking space, nor could they constitute a security hazard as automobiles might. On the other hand, bicycles do provide an outstanding way to conserve energy. In keeping with the spirit of recent Presidential directives and announced Carbide policies on energy, it would seem appropriate for the Company to encourage the use of this mode of transportation in any way possible. Allowing employees to ride directly to the building in which they work would provide such encouragement.

ANSWER: We do not want to encourage the use of bicycles as a means of coming to and from work because of the hazard involved. Riding bicycles in the heavy traffic immediately prior to and after work is extremely hazardous and we want to discourage it. Bicycles are safest when ridden on designated paths, uncongested streets and at times of relatively little automobile traffic.

Car-pooling is suggested as a principle means of conserving energy in getting to and from work.

QUESTION: When are the safety meetings held for the ORNL Biology Department employees? I have attended only one since I have been here (12 yrs.) If they have had any since then, would you please give the dates.

ANSWER: ORNL policy calls for having at least one safety meeting per quarter for each employee. For staff members, the policy does not require a meeting devoted only to safety so long as there is a distinct part of the meeting devoted to safety. All safety meetings, including the safety portions of the staff meetings, should be documented. Although it seems inconceivable that an individual would not have attended any safety meeting for 12 years, our examination of the safety meeting minutes does indicate that the Biology Division has not been complying fully with ORNL safety meeting policy. Sixteen safety meetings were held in 1973 with a total of 1185 employees in attendance. Biology management states that in the future their Division safety meetings will be completely in accordance with ORNL policy.

ORNL's Gerin played role in identifying hepatitis virus

2770-73 ORNL

John L. Gerin, director of the ORNL Molecular Anatomy Program's "satellite laboratory," in Rockville, Md., played a significant role in identifying the elusive virus that causes human serum hepatitis.

Gerin, in cooperation with other National Institute of Health and Stanford University Medical School scientists, has found strong evidence that the particle suspected of causing serum hepatitis contains nucleic acid, the basic ingredient that identifies a virus.

Liver disease

Serum hepatitis is a liver disease that kills 6,000 Americans each year. It is transmitted from person to person primarily through use of contaminated needles or infected blood products, but also by direct person to person contact.

For several years, scientists have known that an antigen (a foreign substance), is associated with serum hepatitis (also called hepatitis B). In the sera of hepatitis patients or carriers, this antigen exists in three physical forms: a small sphere; a filamentous form; and a larger, more complex particle having an outer coat and a smaller inner core. The complex form is called the Dane particle after the British investigator who first described it in 1970, although the particle had been seen in Oak Ridge as early as 1965.

Nucleic acid

Since the Dane particle's appearance is similar to that of a virus, scientists have been trying to detect associated nucleic acid or some other marker of viral activity which could confirm that the particle is the long-sought-after hepatitis B virus. The NIH-supported team of scientists found such a marker — an enzyme called DNA polymerase — which directs the synthesis of deoxyribonucleic acid (DNA), one type of nucleic acid.

Using the electron microscope, Gerin and his staff first examined plasma samples from chronic carriers of hepatitis B antigen. Eight patients whose sera had relatively high concentrations of Dane particles were selected. The sera from these individuals were then concentrated and purified, using high-speed centrifuges.

Stanford scientists

These preparations were then given to a team of Stanford University Medical School scientists, who detected DNA polymerase activity in each of the eight sera. In contrast, they were unable to detect any DNA polymerase activity in seven samples of sera from people who did not have hepatitis B antigen.

JOHN L. GERIN — Gerin, director of ORNL's Rockville MAN Laboratory, is shown against a micrograph of pure hepatitis B antigen magnified 250,000 times.

From other experiments, the investigators determined that the core of the Dane particle most likely contains a DNA "template" which directs the synthesis of DNA.

These findings, although indirect, strongly suggest that the Dane particle is the human hepatitis B virus that scientists have been seeking for so long, and that the virus itself is a DNA virus. This research could lead to development of a better test for infectious blood and blood products - for example, one in which polymerase activity would be a marker of infectivity.

The Rockville MAN Program staff played a role in the current screening tests for hepatitis B, which rely upon detection of hepatitis B antigen. They physically characterized the antigen and worked up the purification (ORNL zonals) procedures which are now being used throughout the country. They also supplied purified antigen for the first radioimmunoassay work and made antibody to the antigen in animals which is currently being considered as an international reference reagent by the World Health Organization.

(Continued on page 8)

Next Issue

The next issue will be dated Feb. 8. The deadline is January 30.

New director named in biomedic studies

Daniel Billen, head of the radiation biology laboratory at the University of Florida, has been named director of The University of Tennessee - Oak Ridge Graduate School of Biomedical Studies.

The School is part of The University of Tennessee, Knoxville, but is operated as an integral part of the Biology Division of Oak Ridge National Laboratory.

Billen replaces Richard B. Setlow, who is giving up his administrative position to devote full time to research activities. Billen's appointment was made by Hilton A. Smith, vice chancellor for graduate studies and research at the university.

At the University of Florida, Billen is also a professor of radiation biology and a member of the faculties of the departments of immunology and medical microbiology, radiology and cellular and molecular biology. Prior to joining the faculty at Florida in 1966, he was a professor of biology at the University of Texas.

From 1951 to 1957, he was a biologist at Oak Ridge National Laboratory, and in 1952 was a visiting lecturer at UTK. He received the B.S. degree from Cornell University and the M.S. and Ph.D. degrees from UT.

Division Retirees

Guettner Hilton

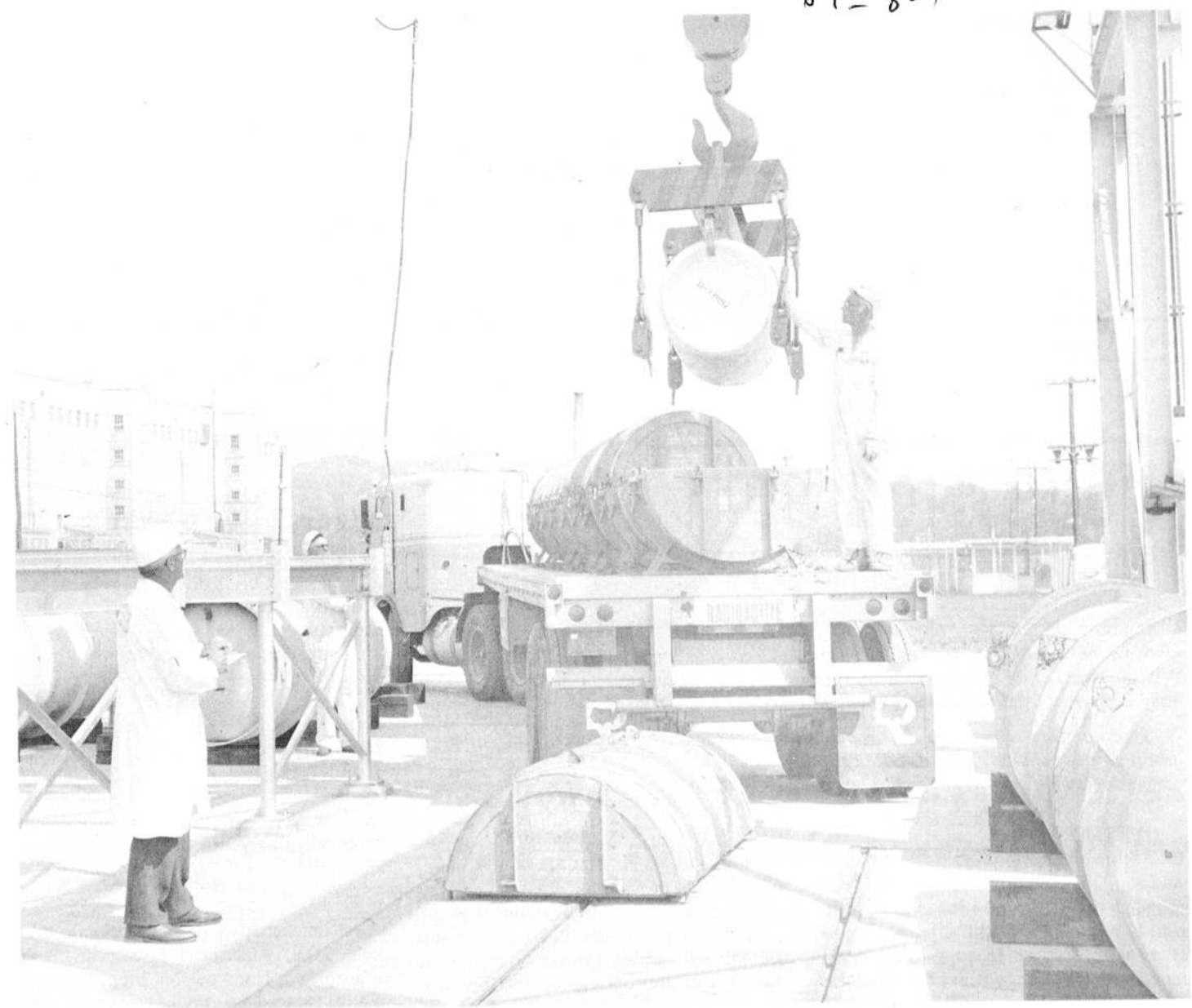
Mitchel Welch

Four veteran Y-12ers will retire at the end of January. Leonard H. Guettner, stores department, closes a 29-year career in Y-12. He lives at Route 3, Kingston.

Merle B. "Wimpy" Hilton retires from mechanical design engineering. He joined Y-12 in 1943, and lives at 5006 Sims Road, Knoxville.

George W. Mitchel, classification and information head, has just finished 30 years with the corporation. He lives at 98 Orchard Lane, Oak Ridge.

John V. Welch, stores department, has been in Y-12 more than 18 years. At the time of his retirement, he was shop steward for the stockkeepers in the Atomic Trades and Labor Council. He lives on Davis Street in Rockwood.



TOLL ENRICHMENT BIG BUSINESS — Unloading cylinders of uranium feed material for processing through the cascade at Oak Ridge Gaseous Diffusion Plant is big business. Toll Enrichment, which began in January, 1969, took a leap last year from $75 million (in 1972) to $106 million in the year just ended.

Paducah promotes Hall to new job

Hall

The promotion of Edward L. Hall has been announced at the Paducah Gaseous Diffusion Plant. He has been named procurement engineer for special projects in the Plant Engineering Division.

Hall joined the Paducah plant in 1953 after working with the City of Paducah.

A native of Paducah, he is active in local community affairs, and is an avid bowler. He and his wife, Greta, live at 243 Bruce Avenue, Paducah.

Just Like Mom & Dad

If you are a cigarette smoker, chances are that your children will be too. This bit of forecasting, based on careful study, comes from the American Cancer Society. You can help your youngsters and yourself to a healthier, longer life if you snuff out that cigarette for good.

Toll enrichment registers significant increase over $75 million for 1972

A significant increase in toll enriching services furnished by the Oak Ridge Gaseous Diffusion Plant was noted during 1973.

More than $106 million in enriching services was reported during the year, compared to $75 million in calendar year 1972.

Under the toll enrichment program, privately-licensed owners bring their uranium to the gaseous diffusion plant for enriching on a toll basis. Customers are charged for the services required to separate from natural uranium the desired percentage of the uranium-235 isotope, usually between two and three percent.

During 1973, reactor facilities in 13 states and six foreign nations participated in the toll enrichment program at the gaseous diffusion plant.

JACK GARLAND DIES

Jack W. Garland, who retired from Y-12 stores department in 1970, died at a Johnson City hospital January 4. Survivors include his wife, Mrs. Martha Garland, Erwin, three sons and a daughter.

PATENTS Granted

To Thomas O. Tiffany, Louis H. Thacker and James C. Mailen, ORNL, for "Dynamic Multistation Photometer-Fluorometer."

To Francis E. Harrington and John D. Sease, ORNL, for "Nuclear Fuel Element with Axially Aligned Fuel Pellets and Fuel Microspheres Therein."

A Question

"If you don't know cancer's Warning Signals, how do you know you haven't got one?" asks the American Cancer Society. Ask the ACS for a leaflet to learn those signals - it may save your life.

Division Deaths

Jack Smith, a senior inspector in the Oak Ridge Gaseous Diffusion Plant's Barrier Manufacturing Division, died January 2 at the Oak Ridge Hospital.

Mr. Smith

A native of Polk County, Mr. Smith joined Union Carbide in 1943.

Survivors include his wife, Mrs. Irene Anderson Smith; two sons, Brian and Jack E. Smith, 163 West Wadsworth Circle, Oak Ridge; a daughter, Susan Dunkleberger; two brothers and two sisters.

Services were held at Weatherford Mortuary with the Rev. J. Edward Firestone and the Rev. James E. Leonard officiating. Burial was in Oak Ridge Memorial Park.

PROBLEMS, PROBLEMS — John Barnes, left, and Dave Pilati discuss the computer code used for identifying errors made on the car pool forms. Barnes is in the Computer Sciences Division at ORNL. Pilati, who developed the Division's car pool program, is in the ORNL-NSF Environmental Program.

Division's car pool program involves problems and humor

Dave Pilati has discovered that developing a car pool program for the Nuclear Division was easy compared to making it work without a hitch. But he's not about to give up.

"You can't imagine the problems we've run into," says Pilati. "Out of the 2,799 forms that were returned by ORNL employees, almost 700 will have to be processed by hand. The computer would not process the forms either because the employees do not live within a grid map area, or because they made some error in filling the form out."

Modified FHA code

John M. Barnes, a programmer in the Computer Sciences Division at ORNL, has developed a modified version of the Federal Highway Administration's computer code which recognizes mistakes. This modified program helps, but the forms still have to be run twice - once to locate the forms with errors, and again after the errors have been corrected.

Nevertheless, if all goes well, ORNL employees should receive computer listings of other employees in their vicinity within the next week. The printouts will be distributed to employees by their division representatives.

Forms from ORGDP employees have already been run through the computer once. Almost 900 forms were kicked back by the computer because of some type of error. ORGDP employees should receive their printouts within the next two weeks.

Y-12 forms

Car pool forms for employees at the Y-12 Plant have not been processed yet. But be patient Y-12ers, you're next.

The car pool program is keeping Pilati, Barnes and the other coordinators very busy, but with all the problems some humor still exists. Pilati recalls one recent telephone call from an insistent male employee: "Where does that girl in the _____ Division live? I really don't care where she lives, I'd like to be put on her list."

ORNL

JOIN CAR POOL or ACCEPT RIDERS from Kingston to either portal, 8 or 8:15 a.m. shift. Curtis Fitzgerald, plant phone 3-1120, or Kingston 376-9771.

JOIN CAR POOL or ACCEPT RIDERS from West Town Mall or Walker Springs Road area to either portal, 8 a.m. shift. G.A. Clark, plant phone 3-6215, or home phone, Knoxville 588-9526.

ORNL

CAR POOL MEMBERS from Waddell, West Outer or Pennsylvania Avenue area, Oak Ridge, to East or North Portal, 8:15 shift. Tom Burnett, plant phone 3-6939 or Oak Ridge 483-1975; or Dick Reed plant phone 3-1901 or Oak Ridge 483-3458.

Y-12 PLANT

RIDE from Sharp Street, North Clinton, to Central Portal, straight day. Mary Bass, plant phone 3-7428, home phone Clinton 457-4005.

RIDERS from West Town area via Kingston Pike to Cedar Bluff Road via Oak Ridge Connector to Oak Ridge Highway. Will pick riders up at any exit on Connector, to any portal in Y-12, straight day. Jim George, plant phone 3-7277, home phone Knoxville 693-6214.

Ames researchers 'clean up' scrap metal, recover steel

With present mining technology, economical iron resources for steel production are expected to last through the year 2000. After that, unless new, cheaper methods are found to use lower grade ores, the cost of steel production will rise dramatically. Yet, two-and-a-half tons of steel are thrown away every minute in auto graveyards in this country. About seven million cars are discarded every year. One million are never recycled.

In a research project sponsored by funds from the Environmental Protection Agency and the Rockefeller Foundation, scientists at the Atomic Energy Commission's Ames Laboratory in Iowa are working on a method of "cleaning up" the scrap metal to recover valuable steel.

Ames Laboratory is operated by Iowa State University under a contract administered by the AEC's Chicago Operations Office, Argonne, Ill.

Removal of impurities

The steel in scrap automobiles is mixed with copper, tin, chromium and nickel, which affect some important mechanical properties of steel itself. Copper and tin cause surface cracks in steel during the hot rolling process, and the chromium affects the ability of steel to be cold drawn into complex shapes. Without the removal of these impurities, only a small amount of impure scrap could be practically returned to the steel inventory.

Researchers at Ames have developed three methods of purifying steel used in various nuclear and space programs. The methods - electron beam melting and vacuum induction melting - all involve melting metal under reduced pressure. Impurities are removed by vaporization.

Ames Laboratory metallurgists have found that copper, tin and chromium can be removed from both simulated and actual automobile scrap by vacuum melting in either an induction or an electron beam melting furnace. A one-step induction melting process has been developed in this work which could lead to recycling other forms of discarded metal such as tin cans and metal from municipal garbage.

Fourth method

A fourth purifying method - electroslag remelting - is also under study. It involves the extraction of impurities into a molten layer of slag (waste from metal refining) covering the metal during the melting process. The electroslag remelting experiments have included evaluation of several slag combinations and different melting procedures. Using these methods, researchers have been able to lower the chromium and tin content to acceptable levels. However, removal of copper by electroslag remelting has not been successful.

If such promising research programs now underway at Ames are successful, one or more of these methods may turn our junkyards and other waste heaps into valuable resources.

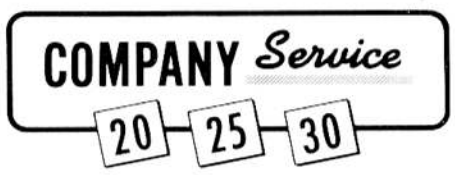
Technical communicators initiate charter group

The East Tennessee chapter of the Society for Technical Communications will hold a dinner meeting at the Alexander Motor Inn, Oak Ridge, 6:30 p.m., Jan. 19, to install officers and to receive an official charter from the national STC president, Helen G. Caird of East Pasadena, Calif.

Ms. Caird, a member of the technical documentation staff of the Jet Propulsion Laboratory, will speak on "Past, Present and Future Objectives of STC."

The STC is a professional society dedicated to the art and science of technical communications and has approximately 3,000 members in chapters throughout North America, Europe, South America and the Far East.

Officers of the East Tennessee chapter are: Andrew Denny, Y-12, president; Joe Deatherage Jr., ORNL, vice-president; Jane Kimbro, ORAU, secretary; and Lola Byrd, ORGDP, treasurer.



Y-12 PLANT
30 YEARS

W. Spence Wallace, James L. Young Jr., Fred H. Marrow, Rolly D. Beasley, Thomas J. Stephens, Frank Fuis Jr., Claude R. Wall, Claude E. Hensley, Ernest E. Kennedy and Bruce A. Hicks.

25 YEARS

Clara A. Johnson and William C. Caldwell.

20 YEARS

Leo J. Taylor, J.C. Graves, Curtis M. Buttram Sr., Curtis C. Moneymaker, William M. Boucher, William M. Turner, Willis S. Hansford, Charles W. Perry and Talmage W. Sizemore.

GENERAL STAFF
30 YEARS

William L. Scott Jr.

PADUCAH
30 YEARS

Donald G. Crecelius.

20 YEARS

Virgle L. Harvey.

ORGDP
30 YEARS

Samuel Blumkin.

20 YEARS

Ernest C. Boyd, Ruth C. Radman, James E. McClane, Ray O. Allison and William P. Buckner.

Car pool particulars?

Members of an established car pool at one of Carbide's plants submitted the following list of qualifications when advertising for an additional member.

1. Must be a resident of St. Albans and Control Systems type individual.
2. Driving ability must be checked and approved by two-third majority of charter members.
3. Applicant must be punctual, courteous, polite, congenial, dependable, fluent conversationalist, knowledgeable of most subjects, athletic type, prudent and above all MODEST.
4. Applicant must be neat in appearance and mild in manner.
5. Applicant must be willing to discuss company business to and from work site. Also, must be able to offer constructive advice on home engineering projects.
6. Applicant must be willing to participate in group activities such as coffee clubs, seminars, flower funds, etc.

Applicant must then sign a statement that he is entering the pool voluntarily and without duress and have it notarized. One small footnote on the application does state that any of the above may be waived, especially if applicant is an attractive female.

Interest rate improved on bonds making for more yield on savings

The yield on Series E and H Bonds is improved, retroactive to December 1, 1973.

QUESTION: What Savings Bonds are affected by the new six-percent rate?

ANSWER: All Series E and H Savings Bonds - both new and outstanding issues.

QUESTION: How is interest paid on the Bonds?

ANSWER: Series E Bonds are accrual-type securities, sold at 75 percent of face value. Interest is paid by gradual increase in redemption value. E Bonds now mature in five years; older E Bonds had various original maturity lengths, ranging from five years and 10 months, to 10 years. Series H Bonds are current-income securities, sold at par (face) value. Interest is paid by semiannual checks issued by the Treasury. H Bonds mature in 10 years.

QUESTION: What about the higher interest rate?

ANSWER: Series E Bonds now on sale return six percent interest, compounded semiannually, when held to maturity of five years. They earn four and one-half percent the first year; thereafter, interest will increase on a graduated scale, raising the yield to 6 percent, from issue date to maturity.

Series H Bonds now on sale also return six percent, when held to maturity of 10 years. They earn five percent the first year, 5.80 percent the next four years, and six and one-half percent the second five years - raising the rate to an average of six percent for the 10-year period.

QUESTION: What about my older E and H Bonds? Will they also pay more, or should I cash them in and buy new Bonds?

ANSWER: Older E and H Bonds have also had their yields improved, so there would be no advantage in redeeming your present holdings to buy new Bonds. Here's how older Bonds are affected by the higher rate --

SERIES E BONDS —

*All outstanding Bonds will receive a one-half-percent increase in yield for semiannual interest periods, beginning on or after December 1, 1973, payable upon redemption.

SERIES H BONDS —

*All outstanding Bonds will receive a one-half-percent increase in yield for semiannual interest periods, beginning on or after December 1, 1973, payable in the form of increased semiannual interest payments.

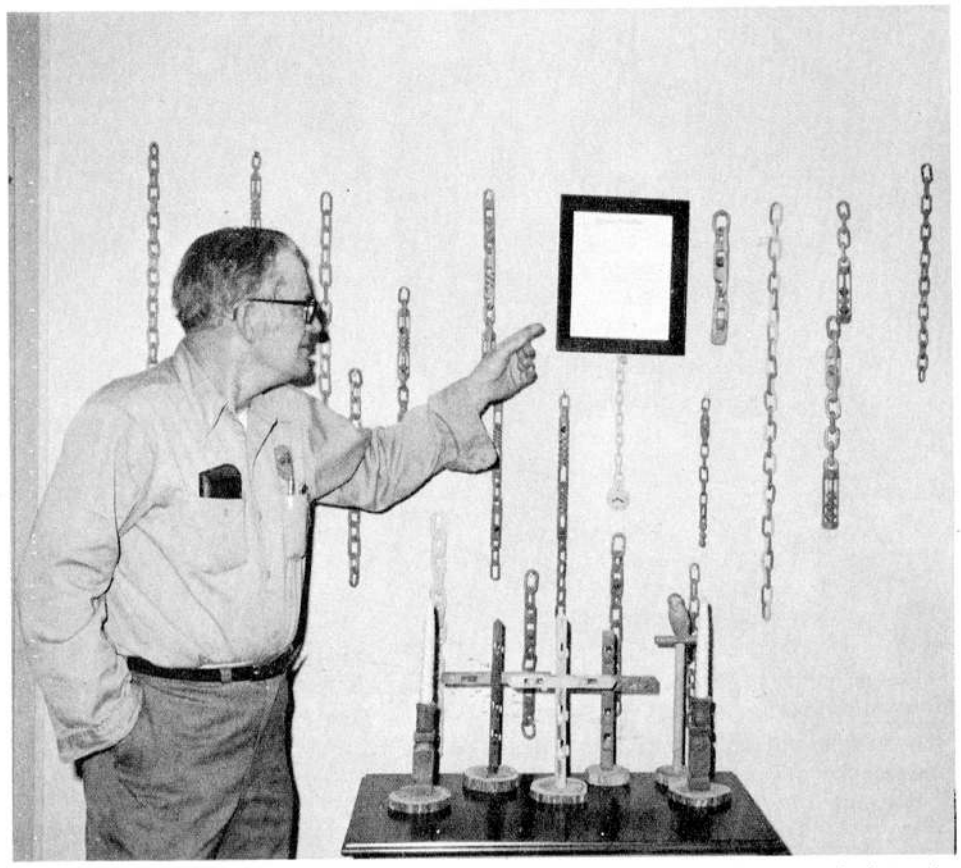
QUESTION: Is there any limit on the amount of Savings Bonds one may buy?

ANSWER: Yes. The annual limit on Series E Bonds is $5,000, **issue price**; the yearly limit on Series H Bonds is $5,000, **face amount.**

QUESTION: Are outstanding "Freedom Shares" also affected by the new rate?

ANSWER: Yes. All outstanding "Freedom Shares" will receive a one-half-percent increase in yield for semiannual interest periods, beginning on or after December 1, 1973, payable upon redemption.

RECENTLY WED — Katherine J. Holsopple and Michael J. Aquilino were married recently at the Chapel-on-the-Hill in Oak Ridge. The bride is the daughter of Herman Holsopple of the Nuclear Division's Law Department. The couple resides in Morristown, N.J.



IN RIPLEY MUSEUM — Sam V. Haun is seen with some wooden carved chains he fabricated before they were accepted in the new "Believe it or not" museum in Estes Park, Colo. Haun, who lives in Oak Ridge, is in ORGDP's maintenance heavy equipment department. In accepting the carvings for the Ripley museum, officials stated that Haun's name would accompany the unusual exhibit.

10 holidays listed for 1974

Nuclear Division employees may wish to clip and save the following holiday schedule to be observed this year throughout the four Nuclear Division plants:

New Year's Day	Tuesday, January 1
George Washington's birthday	Monday, February 18
Good Friday	Friday, April 12
Memorial Day	Monday, May 27
Independence Day	Thursday, July 4
Labor Day	Monday, September 2
Thanksgiving	Thursday, November 28
Day after Thanksgiving	Friday, November 29
Christmas Eve	Tuesday, December 24
Christmas	Wednesday, December 25

On holidays, only a level of work force necessary to assure continuous operation or protection of the plants will be required.

Employees may, with advance arrangements through supervision, utilize part of their vacation to accommodate a need for the observation of religious or other holidays which fall outside this schedule.

Enrichment plant scheduling booklet published by AEC

The U.S. Atomic Energy Commission has published a new report on key elements associated with planning for new uranium enrichment plants that will be required in the future to meet projected demands by the nuclear power industry for enriched uranium.

The new AEC report, entitled "New Enrichment Plant Scheduling" is designed primarily for use by management in private industry which is expected to be in the uranium enrichment business in the 1980's. Actual dates for new plant construction in the United States will be influenced by many factors, including foreign enrichment capacity, nuclear plant load factors and changes in nuclear electric power demand. In any event, fixed commitment contracts between customers and enrichment plant owner-operators will make it possible to plan new enrichment capacity to match demand more effectively and to determine precise dates for scheduling this new enrichment capacity.

Demands for enriched uranium, used as fuel in all nuclear power plants in this country and a majority of those abroad, are currently being met by AEC gaseous diffusion plants. Projected future demands for enriched uranium greatly exceed the present capacity of these plants. Long lead times for construction of additional enrichment capacity, and power procurement in the case of gaseous diffusion plants, require early planning in order that enriched uranium will be available to meet reactor fuel needs in the future.

While the AEC is embarked on a program to expand the production capacity of the AEC's three gaseous diffusion plants, it appears that adequate enrichment services will be available to meet the domestic and U.S.-supplied foreign nuclear power plants only through the early 1980's. New enrichment plants will be needed to satisfy demands beyond that period.

The Commission believes that it is now timely and appropriate for private industry to provide the new enriched uranium production capacity required beyond that obtained through fully improving AEC-owned plants. To that end, AEC is engaged in an industrial participation program with firms in private industry to provide them with uranium enrichment technology on which to base their entry into this field.

The new AEC report is designed as an introductory overview to permit industry management to apply their own assumptions and arrive at their own broad assessments regarding the type, number, and capacity of enrichment plants needed, the scheduling of new plants, commitments for electrical power and capital investment timing for new enriching plants.

The report was prepared by the AEC's Oak Ridge Operations Office and published by the Commission's Technical Information Center (TIC) in Oak Ridge.

Investment course set for stockwatch methods

An advanced course in investments begins January 17 at 7 p.m. at the Holiday Inn, Oak Ridge. It will involve risks and rewards in investing, kinds of securities, the role of the broker, and how to read financial reports. The course will also be on January 24 and 31 at same hour. It will be taught by executives from Merrill Lynch and is free. Reservations may be made by calling Clinton 457-4778 or Knoxville 546-4512.

Byrd and Sweet named supervisors at Oak Ridge Gaseous Diffision Plant

73-3640 73-3641

Two new supervisors have been named at the Oak Ridge Gaseous Diffusion Plant. Billy J. Byrd was made a foreman in Chemical Operations, and Charles C. Sweet was named a supervisor on D Shift in the Maintenance Division.

Byrd joined Union Carbide in 1967, after working with the Southern Drug Manufacturing Company in Knoxville. He is a native of Wartburg, and attended The University of Tennessee.

He and his wife Lola (who also works at ORGDP) live at Route 2, Early Drive, Powell. They have three children: Suzan, Bobby and Vivian.

Active in church work, Byrd is a "backyard" gardener and also breeds dachshunds in his spare time.

Byrd

Sweet

Sweet, a native of Clinton, worked at the National Aeronautics Space Administration complex at Huntsville before joining Union Carbide five years ago. He also worked with the U.S. Coast and Geodetic Survey.

He and his wife, the former Virginia Miller, live at Route 5, Clinton. They have two children: Vicki and Charles.

Sweet is active in Little League football work and enjoys camping as an avocation.

ORGDP BOWLING

The Payoffs lead the pack, three points ahead of the Uptowners, the the ORGDP Women's League. Brenda Moses claimed a high game recently, a 234 handicap single.

In the Tuesday League, W.S. Rule and C.L. Butcher claimed honors as they took high single and series honors. The Double X team dominates standings, 18 points ahead of the City Slickers.

In the Wednesday League, the Sandbaggers and Protectors grabbed an early lead in new standings, as they took sweeps from their victims. Oliver Russ took individual honors in the new season, rolling a game of 235 and a series of 667.

RETIRED Y-12 MACHINIST

Sam W. Lindsay, who retired in 1969 from Y-12's Fabrication Division, died January 3 in a Knoxville Hospital. The 26-year veteran lived at Lake City. Among his survivors are his wife and two daughters. Services were held at the New Hope Baptist Church, Lake City, with burial in the Corinth Cemetery, Loudon County.

Sharon Witherspoon honored as Union Carbide scholar

153 423

Sharon Witherspoon, daughter of Mr. and Mrs. John Witherspoon, 100 Wade Lane, Oak Ridge, has been selected to attend a Washington Congressional Workshop as a Union Carbide Scholar.

Miss Witherspoon was recommended for the honor by the faculty of the Oak Ridge High School. Her nomination was supported by Union Carbide's Nuclear Division.

As a recipient of the honor, Miss Witherspoon will participate in a week-long seminar starting March 31.

The curriculum for the seminar includes classes, discussions with members of Congress, attendance at House and Senate Chamber sessions and committee meetings, and talks by Cabinet members and other national leaders, both in and out of government. Participants are housed at Mount Vernon Junior College where most of the seminar sessions will be conducted.

Miss Witherspoon, a senior at Oak Ridge High School, has served as president of the Student Council, and chairman of the delegation to the North American Invitational Model United Nations. She has also served as president of the Youth Association for Retarded Children in Oak Ridge.

As a Union Carbide Scholar, the full cost of Miss Witherspoon's participation in the Congressional Seminar is being defrayed by Union Carbide Corporation.

Miss Witherspoon

The Oak Ridge Scholar's father works in the Environmental Sciences Division at ORNL.

World Press fellows set visit to Oak Ridge facilities

Outstanding young journalists from 12 countries will visit Oak Ridge January 30-31 for briefings and a tour of facilities here.

The journalists are participants in the World Press Institute. The Institute, headquartered at Macalester College, St. Paul, Minn., is a private nonprofit organization sponsored by American corporations and their foundations. Each year the Institute selects young journalists from throughout the world as World Press Institute Fellows. For nine months these newsmen participate in a program that includes intensive study, internships and travel.

Varied nationalities

This year's participants are from Australia, Canada, Egypt, France, Hong Kong, Ivory Coast, Mexico, Norway, Peru, Romania, Singapore and the United Kingdom.

The Fellows will be accompanied on their visit to Oak Ridge by Mark H. Stedman, Director of the World Press Institute. Stedman explained that the goal of the Institute is to insure that international opinion about the United States is shaped by journalists writing from a comprehensive background of experience in America.

View of America

"The Institute seeks to achieve this by providing young foreign journalists with an open and unfettered view of American society at every level so that they may return home with new-found ability to report and interpret U.S. affairs more accurately and with deeper understanding," Stedman said.

This year's World Press Institute Fellows include: John Raedler, **Daily Telegraph**, Sydney, Australia; Andrew Moir, **Brandon Sun**, Manitoba, Canada; Ayman El- Amir, **Al-Ahram**, Cairo, Egypt; Anne Nourry, **France-Soir**, Paris, France; Stephen Siu, UPI, Hong Kong; Guy Barth, **Fraternite-Matin**, Abidjan, Ivory Coast; Manuel Sandoval, **Excelsior**, Mexico City, Mexico.

Also, Jon Hosoien, **Morgenavisen**, Bergen, Norway; Ciro Gamarra, UPI, Lima, Peru; Neau Udroiu, **Scienteia Tineretului**, Bucharest, Romania; Mary Lee, **New Nation**, Singapore; Lesley Hall, **Daily Record and Sunday Mail**, Gasgow, Scotland.

INCOME TAX INFORMATION

As part of the Internal Revenue Service effort to make income tax filing as easy as possible, a toll-free tax assistance telephone system has been established in Tennessee.

For your information the numbers are listed below.

Chattanooga	892-3010
Johnson City	926-9133
Knoxville	584-0241
Memphis	522-1250
Nashville	259-4601

If your area is **not** served by one of the above telephone exchanges, call 800-342-8420 for information concerning income tax.

THE LAST WORD

A problem child is one who puts two and two together and gets your number.

Credit unions from all division's plants prepare for annual meetings

With assets near $40 million, the four credit unions from the four Nuclear Division plants are gearing for their annual meetings.

The Paducah Credit Union kicks off the schedule, meeting Sunday, January 20 at 1:30 p.m. in the Civic Center Building.

Betty Barbre, Frank Brown Jr., Harold Howell, Jesse Knott, Kenny Owens, Morris Shelton and Charles Turok have been nominated to the board of directors (a total of four will be elected.) Florence Allison, John Hornsby and Ed Wilkins have been nominated for two vacancies on the credit committee.

Paducah dividends

Paducah's Credit Union also announces a dividend of six percent for the last half of 1973, and a 25 percent interest refund. Members getting more than $10 shall receive their checks this month, members receiving less will have their refunds credited to their savings accounts. Refunds are not made on federally insured educational loans made at reduced rates.

Door prizes for the Paducah meeting will include $100 and 20 other prizes of $20 each.

Y-12's Credit Union will hold its annual meeting January 24 at 7 p.m. at Robertsville Junior High School. A portable color television set, several cameras and toaster ovens will be given away as door prizes.

Two members of the board are to be named, as well as a member to the credit committee.

K-25 Credit Union meets January 28 at 7:30 p.m. at the OCAW Union Hall, at Grove Center, Oak Ridge.

Four board members will be elected and three named to the credit committee.

Television sets

Door prizes for the K-25 meet include two color television sets.

The ORNL Credit Union meets January 31 at 7:30 in the Shep Lauter Room of Oak Ridge's Civic Center.

Four members are to be named to the board, and three vacancies exist on the credit committee.

Each member attending ORNL's meeting will receive a silver dollar and a chance on 10 hams, which will be given away.

BOOK ON ORNL ELEMENT

"Promethium Technology," a 395-page hardcover volume edited by E. J. Wheelwright, has been published by the American Nuclear Society, Hinsdale, Ill.

Promethium (element 61) was first isolated and identified by scientists at ORNL in 1944.

Contents of the book include: the search for and discovery of promethium, spectral work, and the preparation and crystallographic characterization of promethium compounds; the recovery and purification of promethium; the radiochemical properties of promethium; the analytical chemistry of promethium; the preparation and properties of promethium oxide; the preparation and properties of the metal and the properties of the oxide and metal of interest to the engineer designing a promethium application.

"Promethium Technology" may be ordered for $22.50 from the American Nuclear Society, 244 East Ogden Avenue, Hinsdale, Ill. 60521.

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RECREATIONOTES

PADUCAH GOLF (?)

Fifty-two addicts of the golf game gathered at Paxton Park December 15 for the last plant tourney of the year.

Dave Barclay's team of Bernie Tilford, Mike Flood and Mary Parrish came in first with an astounding five under par 30, closely followed by teams captained by Charlie Maxwell, Charles Turok, Gene Larson, "Red" Wolfe and Arvin Gorline with three under par 32's.

Some astounding things were noted at this tournament, which is considered by normal folks as a summer game. More female employees entered than any other this year . . . The scores were on a hole (Whole) lower for nine holes than any other despite low temperatures (high 30's) and wind (seven to 12 miles per hour) . . . Under the aforementioned conditions nine holes were not enough for the real golf nuts, and as the grey cold mist of afternoon closed in, foursome after foursome were seen teeing off on number ten and fading into the swirling fog of the fairway, and in some cases, headed for the rough to take just one more whack at that pesterifous little white ball.

Y-12 FISHING RODEO

Y-12 also announces the following winners:

LARGEMOUTH BASS
1. Harley S. Weaver
2. Gary L. Bowers
3. Elbert Scott
4. B. O. Miller

SMALLMOUTH BASS
1. Mike A. Estep
2. J. W. Gossage

STRIPED BASS
1. Frances Parrett

BREAM
1. J. H. McCracken
2. Golda Caylor

CRAPPIE
1. William K. Mink
2. William R. Jago
3. Gary M. Wisman

ROCK & HYBRID
1. W. S. Caruthers
2. H. L. Pace

ROUGH FISH
1. O. N. Copenhaver
2. Garrett Baird Jr.
3. Joe Jackson

SAUGER
1. J. L. Harvest Jr.
2. R. S. Phillippi
3. J. M. Whatley
4. Jerry L. Parrett

TROUT
1. William B. Ward
2. Mark Valentine
3. J. F. Gilliam

WALLEYE
1. Arnold K. Craft

Y-12 winners may pick up their awards at the Recreation Office, Building 9711-5, beneath the Cafeteria.

SKEET LEAGUE

ORNL's D.N. Frye placed high in skeet shooting in December, scoring 48.486. Carl Brewster, Y-12, fired second with 48.381, and W. Davy Jr., ORGDP, came in third with 48.205.

BASKETBALL

One team in the Atomic League and two in the Nuclear League still boast untarnished records.

ATOMIC LEAGUE

Team	W	L
Has Beens	8	0
Grundy Express	5	1
Bombers	5	1
G B U's	4	1
Testers	4	1
Underdogs	3	3
Possum Soup	3	4
73'ers	2	3
Electrodes	2	4
Carbide Trojans (Dropped)	0	18

NUCLEAR LEAGUE

Rolling Bones	4	0
Bottlenecks	3	0
COE	4	1
Wildcats	3	1
Just-For-Fun	3	1
Chi-Town Hustlers	2	3
The Gunners	1	3
Eco-Trolls	0	3
H - Shift	0	4
Isomets	0	4

ORGDP FISHING RODEO

The ORGDP semi-annual fishing rodeo posts the following winners:

LARGEMOUTH BASS
1. R. G. Hyde
2. R. D. Shaffer
3. Roger L. Childs
4. Richard R. Abbott

SMALLMOUTH BASS
1. H. E. Walters
2. Dwight L. Morrow
3. Wayne E. McGhee
4. Mark Howard

STRIPED BASS
1. Neil Walters
2. Tim Cox

BREAM
1. Marjorie Hart
2. W. H. Adams

CRAPPIE
1. A. D. Reeder

MUSKIE
1. Madelyn Rathbone

ROCK & HYBRID
1. Neal Hurd

ROUGH FISH
1. R. G. Vornehm
2. William M. Cox
3. Gary Walters

SAUGER
1. J. H. Fletcher
2. Robert F. Hyland
3. Harold D. Adkins

WALLEYE
1. Mrs. H. E. Walters

Prizes may be collected at Room C-136 at ORGDP.

Y-12 BOWLING

The Ministrikes took season's first half, claiming the crown a full six points ahead of the Rounders. Tom Hillard, from the second-ranked team fired a 224 game on the final night of rolling.

The Rollers and Hits & Misses opened the second half of league play, taking sweeps from the Goofers and Splinters respectively.

The Ridgers rounded out three and one-half ahead of the Eightballs and Splinters. J.D. Franklin recently burned the maples down, rolling a 257 scratch game!

MISTLE TOE BALL — Paducah enjoyed a holiday dance at the Jaycee Civic Center December 28. A variation of flashes from the gala affair is seen above.

VOLLEYBALL

Two teams in the Atomic League head for a show-down . . . the Pack and the Hawks. The Over-the-hill Gang in the Nuclear League recently dropped their first game.

ATOMIC LEAGUE

Team	W	L
Pack	15	0
Hawks	12	0
The Gang	7	2
Taxi Squad	7	5
Old Men	5	7
Rad-Fizz	4	8
Funky Wambats	4	8
Electric Bananas	3	9
Jokers	2	10
The Quarks	1	11

NUCLEAR LEAGUE

Over-The-Hill Gang	11	1
Pogo's	9	3
Bombers	6	3
Anti-Quarks	9	6
Newcomers	7	5
Bawlers	6	6
Sloths	6	6
Artie's Army	5	7
The Neutrals	1	11
TAT	0	12

ORNL BOWLING

The Oops team took high honors in the Carbide Mixed Family League, posting a good six points ahead of the Lucky Strikers. Dan Kessell's 232 game was the high scratch score of the season.

The Misfits were four points out in front of the Ten Pins in the A League.

The C League recently saw Carlos Brooks roll a 602 scratch series . . . games of 235, 167 and 200. The Pin Heads assume first spot in late standings, ahead of the Troopers.

The Pick-ettes take first spot away from the Hp-ettes in the Ladies' League.

ORNL FISHING RODEO

ORNL also posts the following winners:

LARGEMOUTH BASS
1. William H. Brooks
2. Dewey F. Barnard
3. James C. Thompson

SMALLMOUTH BASS
1. Bill Martin
2. John D. Sease
3. John T. Walker
4. Gladys Herrell

STRIPED BASS
1. Raymond Shooster
2. Gladys Akers
3. W. H. Akers
4. Ralph L. Clark

CRAPPIE
1. Kathleen Howard
2. W. L. Howard, Jr.
3. Gus E. Testerman
4. Max B. Brewer

BREAM
1. E. B. Cagle
2 R. L. Livesey

ROCK & HYBRID
1. Arnold Beets
2. G. E. Pierce

ROUGH FISH
1. Georgette Shooster
2. Carl L. Fox

SAUGER
1. R. G. Shooster
2. J. T. Robinson
3. David Akers

TROUT
1. Raymond Brashier

WALLEYE
1. H. Davidson
2. Eddie Bailiff

ORNL prizes may be picked up at K-113, 4500 Building.

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A fact file on mononucleosis

(Editor's Note: Dr. Lincoln alternates his regular column with "The Medicine Chest," where he answers questions from employees concerning their health in general. Questions are handled in strict confidence, as they are handled in our Question Box. Just address your question to "Medicine Chest," NUCLEAR DIVISION NEWS, Building 9704-2, Stop 20, or call the news editor in your plant, and give him your question on the telephone.)

By T. A. Lincoln, M.D.

Infectious mononucleosis, popularly called mono, seems to have a bad reputation that is not entirely justified. True, when it causes a college student to have to drop out for a quarter, it is cause for concern. If a member of your family ever has mono, you may want to have the following file of facts on hand for reference.

1. Cause: Although a few microbiologists still are not completely convinced, the cause probably is the Epstein-Barr virus (EBV).

2. Incidence: Individuals who have antibodies against the EB Virus in their blood are not susceptible and have had either a recognized clinical infection or, much more frequently, an unrecognized infection. Studies of entering college freshmen in several universities indicate that about 50 to 60 percent already had antibodies and were therefore not susceptible. In Marine recruits at Parris Island, S.C., 86 percent had antibodies. Apparently young people from less sophisticated backgrounds are more likely to have had a mild or inapparent infection in early childhood while college kids from a higher socioeconomic background are more likely to get their first exposure after entering college.

Of those who are susceptible, about 12 to 15 percent will develop antibodies during the first year in college and of these, about 50 to 75 percent will have a clinically recognizable infection. Thus roughly five to ten percent of incoming college freshmen will get recognizable mono. About 15 to 35 percent of admissions to college infirmaries are for mono. Most of the cases, fortunately, are relatively mild.

3. Contagiousness: Susceptible roommates of college students who get mono run a low risk of infection. Occasionally clusters of cases occur in dormitories or in families, but they are uncommon. Mono has a low contagiousness among susceptible individuals, even with close and prolonged exposure. Mono never occurs in "epidemics."

4. Diagnosis: The clinical criteria are fever, swollen lymph glands, sore throat, abnormal white blood cell count with 50 percent or more of the cells being lymphocytes or monocytes and at least 10 percent of them atypical forms, abnormal liver function tests, and a positive heterophile antibody test (not the same as the EBV antibody test).

5. Source of Infection: The virus is present in the throat of patients with either obvious or unrecognized infections for from weeks to many months. The long duration of virus shedding and the possibility of a carrier state make it extremely difficult to trace the transmission of mono on a case-to-case basis. Parents who worry about kissing as the source of their son's or daughter's infection should relax. Spread by sharing of drinking utensils or inhalation of droplets in the air from carriers who cough or sneeze is probably as likely a source.

6. Recurrences: One has to be cautious about using the word "never" in medicine, but genuine recurrences are exceedingly rare. They are less likely than with measles or chicken pox.

7. Incubation Period: Based on epidemiologic studies only, the range is from 33 to 49 days.

8. Complications: About six percent of cases develop jaundice due to liver involvement. Rarely, the central nervous sytem or kidneys may be affected. Rupture of the spleen is a rare complication. The fatality rate is probably less than 1 per 3,000 cases.

9. Rash: About 15 percent of cases have a wide variety of rashes. Mono patients who have their sore throat treated with ampicillin (a special penicillin with a broader spectrum of activity) may develop an extensive reddish purple irritative rash about a week after commencing ampicillin. The rash does not occur with other penicillins unless, of course, it is simply an allergic reaction.

10. Treatment: This disease is usually mild, even though recovery is sometimes slow. It is best to be conservative. Antibiotics are useless unless a secondary infection occurs. In a few cases with complications or an unusually prolonged course, cortisone (usually as prednisone) can be given.

11. Relationship to Leukemia or Hodgkins' Disease: The EB Virus was first found in patients with Burkitt's lymphoma, a special type of lymph node malignancy, in Africa. Its relationship to mono came later. High antibody levels against the Epstein-Barr virus sometimes occur in patients with mono, Burkitt's lymphoma, cancer of the nasopharynx, leukemia, and certain forms of Hodgkins' disease. Since most adults eventually develop antibodies to EBV, it is doubtful if mono has any cause and effect relationship to these other malignancies. There is no reason for concern and much further study will be necessary to establish what, if any, relationship it has.

12. Prevention: No vaccine is available yet, but as more is learned about the virus, it may be developed. The relationship of the EB Virus to lymphomas or leukemia will have to be completely understood before any serious effort to develop a vaccine can begin.

If these facts stimulate further questions, please write or call the News Office and I shall try to answer them in the Medicine Chest.

HOLIDAY HAPPENINGS — The Oak Ridge Gaseous Diffusion Plant personnel got together December 15 for a festive holiday dinner-dance, staged at the Oak Ridge Civic Center.

Calendar of EVENTS

COMMUNITY

FEBRUARY 10

Oak Ridge Chapter of Hadassah will sponsor "An Auction of Original Art," by important European, American and Israeli artists. Alexander Motor Inn, exhibition showing at 2 p.m., auction at 3 p.m.

TECHNICAL

January 18

ORNL's Chemistry Division Seminar: "The Last Tango: Experiences with ALICE in Orsay," R.L. Hahn. Building 4500-N, East Auditorium, 3 p.m.

NUCLEAR DIVISION NEWS

UNION CARBIDE

Published twice-monthly for
The Employees Of
UNION CARBIDE CORPORATION
NUCLEAR DIVISION

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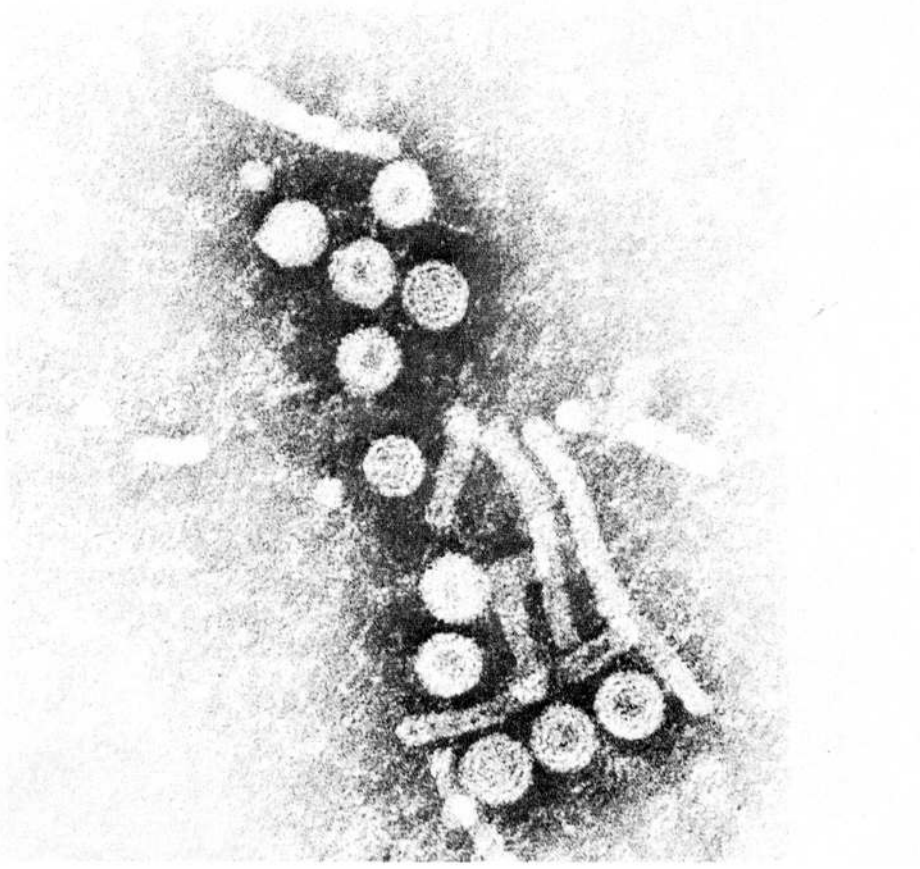
ORNL's Gerin - hepatitis virus



DANE PARTICLES — The core of the Dane particle (magnified 150,000 times) was found to contain an enzyme called DNA polymerase which directs the synthesis of deoxyribonucleid acid (DNA), one type of nucleic acid. These findings suggest to scientists that the Dane particle is the human hepatitis B virus, and that the virus itself is a DNA virus.

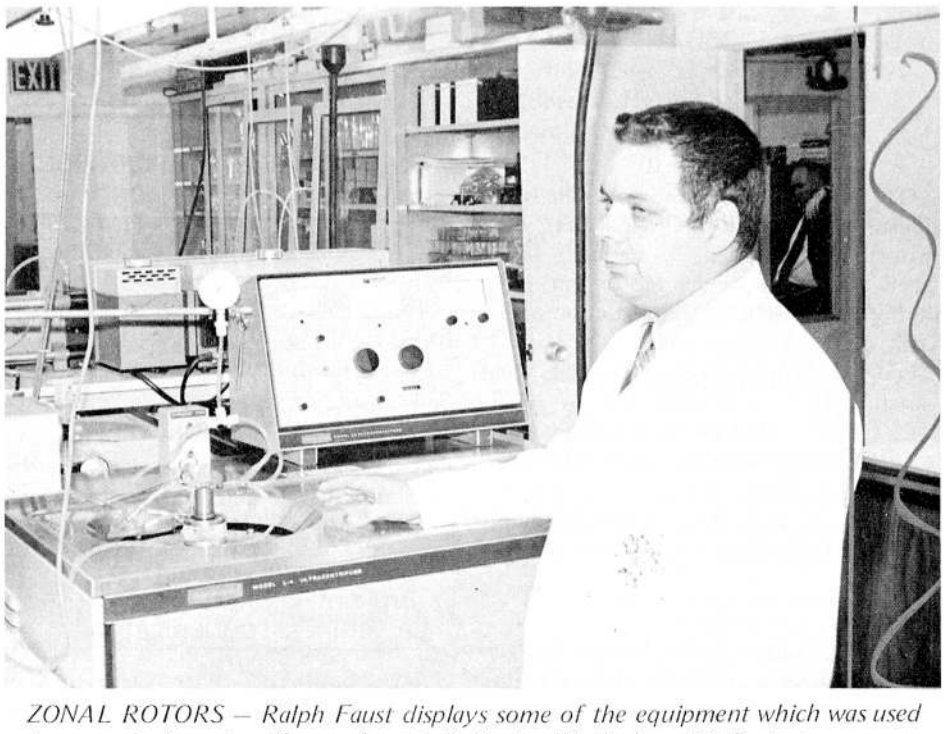
(Continued from page 1)

The spinoff of the research on hepatitis B has created considerable commercial activity. There has been an expanding market, the testing procedures have been licensed by the government and the tests are now required for every unit of blood drawn in this country. An approximate $20 million per year industry for testing now exists.

The testing of blood from donors has had a great impact on the cases of clinical serum hepatitis. For example in one study, before the testing procedures were developed, about 33 percent of all patients who received blood during open-heart surgery contracted hepatitis B. This figure has been reduced to 7 percent, as a result of screening and the exclusion of commercial blood donors.

The next step, which will probably take several years, is to develop a vaccine for hepatitis B. A vaccine proposal has already been developed, but Gerin stated that final details have not been worked out.

The MAN Program at Rockville has been in operation since 1969, but there are still some Carbiders who do not know of its existence. In addition to Gerin, the staff consists of Paul M. Kaplan (who previously worked with the Stanford University School of Medicine on the hepatitis research), Ralph M. Faust, Eugenie C. Ford, Edwin J. Hoffman, Irene M. "Peggy" Jensen, Charlotte A. Langer, James Wai-Kuo Shih, Paul C. Skinner and Peter L. Tan.



ZONAL ROTORS — Ralph Faust displays some of the equipment which was used to concentrate and purify sera from individuals with the hepatitis B virus.

SAFETY COMMITTEE — From left, Thomas W. Boucherm, Allen W. Russell, Waldo Evans, chairman; Richard R. Mason, Earnest R. Warford and Ophelia Oliver, display some of the safety signs to be seen in the Paducah Plant during the early part of the year. Hugh Vantreese and Ben Whiteaker were not present for the above photo.

Paducah chooses "safety signs" as topic for early 1974 contest entries

The plantwide safety topic will be "Safety Signs." To encourage individual participation in recognizing the importance of the different safety signs, a sign display center and a contest will be used to supplement the regular safety meeting material.

The sign display and a drum for depositing contest entry cards were in the Cafeteria from December 17 through January 4, and will be at Building C-720 from January 5 through 20, and the bus stop from January 21 through 31. The drum will be returned to the Cafeteria from February 1 through 3 for the benefit of those who were unable to deposit their cards during January.

The drawing will be held on February 4, and the five winners will each be given a U. S. Savings Bond.

RETIRED ORNL MEN

William G. Jernigan Sr., died December 27 at Oak Ridge Hospital. Mr. Jernigan worked as a materials foreman in the Plant and Equipment Division prior to his retirement in 1957. The Jernigan home is at 107 Ogden Lane, Oak Ridge.

John A. Snyder, a retired mechanical instrument maker, died January 2. Mr. Snyder was in the Plant and Equipment Division at ORNL until his retirement in 1970. Survivors include his wife, Mrs. Myrtle C. Snyder, 5708 Wallwood Lane, Knoxville.

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